

REMARKS

By the present amendment, claims 1 to 5 and 7 to 11 are pending in the application. Claim 1 is the only independent claim.

Support For Claim Amendments

Claim 5

In amended dependent claim 5, support for an external load may be found in the specification at page 9, lines 20-31, particularly lines 26-27 and line 29.

Claim 7

Support for new dependent claim 7 may be found in the specification at page 6, lines 28-31 and Fig. 1 of the drawings.

Claims 8-11

Support for new dependent claims 8 to 11 may be found in the specification at page 8, line 32 to page 9, line 8 and Figs. 3 and 4 of the drawings.

§103

Claims 1 to 6 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,857,808 to Sugimoto et al. (PCT publication date of 3/8/01) in view of U.S. Patent No. 6,467,321 to Prokopenko et al. ("PK").

This rejection, as applied to the original, amended and new claims, is respectfully traversed.

Patentability

The present invention provides a reinforced steel pipe pole base and a method for reinforcing the steel pipe pole base that do not permit the strength of weld of a reinforcing rib to be lowered in the vicinity of the weld toe, even in the event of applying repeated bending moment. In accordance with the present invention, peening processed portions are formed by ultrasonic vibration at weld toes of tabular ribs welded to the base of a steel pipe pole in the form of a T-joint or the weld toes of inverted-U shaped ribs or inverted-V shaped ribs, the ribs being bent at the upper end portions, welded to the base of a steel pipe pole in the form of a T-joint.

U.S. Patent No. 6,857,808 (US '808') is directed to a joining structure that is reinforced by welding a structural member to a base plate or coupling flange via U shaped or V shaped reinforcing ribs. The present invention is an improvement to the invention of US '808, wherein the present invention improves fatigue strength.

The present invention is directed to a steel pipe pole base reinforced by tabular shaped, U shaped or V shaped ribs welded to the steel pipe pole base wherein peening processed portions are formed at the weld toes by ultrasonic vibration in order to improve fatigue strength.

US '808 does not disclose or suggest peening processed portions formed by ultrasonic vibration at the weld toes of the reinforcing ribs.

It is submitted that there is no disclosure or suggestion in the prior art of a steel pipe pole base reinforced by ribs welded to the steel pipe pole base, wherein peening processed portions are formed at the weld toes by ultrasonic vibration.

Figs. 7 and 8 of the present application show that, in accordance with the present invention, fatigue strength is increased when peening processed portions are formed

at the weld toes by ultrasonic vibration for a steel pipe pole base reinforced by ribs welded to the steel pipe pole base.

U.S. Patent No. 6,467,321 ("PK") only discloses the details of the construction of a specific device for the ultrasonic peening of metals. PK contains no suggestion to apply peening by ultrasonic vibration to a steel pipe pole base reinforced by ribs welded to the steel pipe pole base in the particular location and manner defined by the claims in accordance with the present invention or the results achieved by the present invention by forming peening processed portions at the weld toes of the reinforcing ribs for a steel pipe pole base. PK only discloses that ultrasonic peening of metals is known in art (see, e.g., PK Col. 1, lines 6-16) and then goes on to disclose a specific device for the ultrasonic peening of metals.

US '808 discloses numerous embodiments of steel structures. PK makes no disclosure or suggestion of which locations in these steel structures one skilled in the art should apply peening by ultrasonic vibrations to achieve improved results. Furthermore, PK makes no disclosure or suggestion to provide peening processed portions at the specific locations in the specific structures defined in the claims of the present application.

It is therefore submitted that independent claim 1, and all claims dependent thereon, are patentable over U.S. Patent No. 6,857,808 in view of U.S. Patent No. 6,467,321.

Furthermore, US '808 in combination with PK do not disclose or suggest the very specific locations for the peening processed portions of new dependent claims 7-11 (claim 7 - tabular ribs - at least 10 mm downward from the upper end portion) (claims 8-11 - inverted-U or inverted-V, about 30-60 degrees, preferably about 45°, on both sides of the center line).

Therefore, new dependent claims 7 to 11 are further patentable over US '808 in view of PK.

Furthermore, US '808 in combination with PK do not disclose or suggest the subject matter of amended dependent claim 5, wherein the ultrasonic vibration peening is applied while an external load is imposed on the steel pipe pole base so as to impose a tensile stress in the direction of the steel pipe axis on the base material in the region subject to the peening treatment.

Therefore, amended dependent claim 5 is further patentable over US '808 in view of PK.

CONCLUSION

It is submitted that in view of the present amendment and foregoing remarks, the application is now in condition for allowance. It is therefore respectfully requested that the application, as amended, be allowed and passed for issue.

Respectfully submitted,

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